

FISH ASSEMBLAGES OF TWO ADJACENT COASTAL LAGOONS IN RIVER NESTOS DELTA (NE GREECE)

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Abstract

The fish fauna diversity of two adjacent coastal lagoons in northern Greece, after 12 months sampling (Vassova 25 species and Erateino 27 species), is used as an indicator of the water quality in these lagoons.

Keywords: Lagoons, Aegean Sea, Fishes

Introduction

The fish fauna can be used as an indicator of the environmental quality of the lagoons. Vassova and Erateino lagoons are situated in the northern Aegean Sea, at the western bank of Nestos River delta (Northern Greece). Vassova lagoon is approximately 270 ha in surface area with a mean depth of 0.8 m. Erateino lagoon is larger in surface area (350 ha) with a mean depth of 1.1 m.

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Materials & Methods

Fish were collected monthly from August 2007 to July 2008, using a nylon centre-bag seine net (2 mm bar mesh size) of 12 m length and 1.2 m height. The bag seine was hauled for 30–50 m to cover an area of 250 m², approximately. The relative abundance was estimated by the Catch per Unit Effort method (CPUE: specimens/100 m²) [1]. Sampling was conducted in two stations; one close to the entrance one inside the lagoons.

Results & Discussion

Overall, 36 species representing 19 families were identified in both lagoons (Table 1). 25 of them were identified in Vassova (24 in the entrance and 11 in the inside) and 27 in Erateino lagoon (22 of which were found in the entrance and 20 in the inside). From the above species the residents are almost the same in all stations (7 to 9). The migrant species are 10 and 11 in Erateino entrance and inside respectively but 13 in the Vassova entrance and only 4 in the inside. The low number of migrant species found inside the Vassova lagoon can be linked to the low water quality in the lagoon, which is also indicated by the low DO concentration [2]. Probably this is the reason that the species prefer to remain in the entrance of the lagoon where due to the tidal water movement the environmental conditions are better. The fact that almost the same number of species was found in the entrance and in the inside of the Erateino lagoon, indicates a possibly higher water quality in contrast to the Vassova lagoon. The dominant species in the lagoon is the *Pomatoschistus* sp., with an abundance of 537 to 1495 individuals/100 m². It is followed by *Atherina boyeri*, showing higher abundance in the inside of the Erateino lagoon (246 ind./100 m² *Aphanius fasciatus* again in the same station (230 ind./100 m²), and by all species of the Mugilidae family.

Tab. 1. The fish species and their abundance (individuals/100 m²) found in both Vassova and Erateino lagoons (Nestos river delta, NE Greece)

Family	Species	Life cycle	Vassova - Entr	Vassova - Ins	Erateino-Entr	Erateino-Ins
1 ATHERINIDAE	<i>Atherina boyeri</i>	Resident	88,3	120,0	99,9	248,5
2 BLENNIIDAE	<i>Parablennius sanguinolentus</i>	Migrant	1,1	0,4	1,0	1,0
3 CALLIONYMIDAE	<i>Callionymus risso</i>	Migrant	0,3			
4 CLUPEIDAE	<i>Sardinella aurita</i>	Straggler			9,5	10,3
5 CYPRINODONTIDAE	<i>Aphanius fasciatus</i>	Resident	0,5	55,0	1,3	230,8
7 ENGRAULIDAE	<i>Engraulis encrasicolus</i>	Straggler			0,8	
8 GOBIIDAE	<i>Gobius geniporus</i>	Resident	0,8		1,5	
9	<i>Gobius niger</i>	Resident	0,9	6,3	3,3	14,5
10	<i>Knipovitschia caucasica</i>	Migrant	3,4	29,6	13,0	88,0
11	<i>Pomatoschistus</i> sp.	Resident	872,3	1261,7	537,3	1495,8
12	<i>Zosterisessor ophiocephalus</i>	Resident	5,6	0,8	11,3	9,3
13 MORONIDAE	<i>Dicentrarchus labrax</i>	Migrant			0,6	
14 MUGILIDAE	<i>Chelon labrosus</i>	Migrant	0,6		0,8	2,5
15	<i>Liza aurata</i>	Migrant	198,8	1,7	7,5	6,6
16	<i>Liza ramada</i>	Migrant	73,6		2,5	3,3
17	<i>Liza saliens</i>	Migrant	88,1	28,3	52,3	100,5
18	<i>Mugil cephalus</i>	Migrant	154,5	0,8	0,8	8,5
19 MULLIDAE	<i>Mullus surmuletus</i>	Straggler				
20 PLEURONECTIDAE	<i>Platichthys flescus</i>	Migrant	0,2			
21 POECLIDAE	<i>Gambusia affinis</i>	Resident	4,2			14,5
22 SCIAENIDAE	<i>Sciaenops ocellatus</i>	Straggler			0,3	
23 SCOPHTHALMIDAE	<i>Scophthalmus rhombus</i>	Straggler	0,2			
24 SOLEIDAE	<i>Solea</i> sp.	Migrant	0,2			
25 SPARIDAE	<i>Diplodus annularis</i>	Migrant	0,5		2,8	0,5
26	<i>Diplodus puttanzo</i>	Migrant	0,2		0,8	
27	<i>Diplodus sargus</i>	Migrant			1,0	
28	<i>Diplodus vulgaris</i>	Migrant	2,5			0,5
29	<i>Lithognathus mormyrus</i>	Migrant				0,3
30 SPHYRAENIDAE	<i>Sphyraena sphyraena</i>	Straggler				
31 POMATONIDAE	<i>Pomatomus saltatrix</i>	Straggler			0,3	
32 SYNGNATHIDAE	<i>Hippocampus</i> sp.	Straggler			1,3	
33	<i>Nerophis opidion</i>	Straggler	0,2			
34	<i>Syngnathus abaster</i>	Resident	14,2	1,7	4,5	6,5
35	<i>Syngnathus acus</i>	Migrant				0,5
36	<i>Syngnathus typhle</i>	Resident	2,8			

References

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